WTC- CHANGES TO EVACUATION SYSTEMS AFTER 1993

1. **Photo luminescent paint on handrails, stair treads, and stair centerline. The glow-in the dark paint proved invaluable in guiding people through the stairs filled with choking dust on 9/11.**

2. **Multiple power sources for stairwell lighting: 2 normal feeds, back up generator, and a back up from PATH system. Additionally, battery back up for every other stairwell fixture (up to 90 minutes).**

3. **LED type exit signs for extra brightness and visibility through smoke condition.**

4. **Fluorescent signs inside stairwells at all stair reentry doors along with raised porcelain type braille**

5. **Fire Command Stations at main lobbies.**

6. **In addition to normal lighting in elevators with emergency power, 2 sealed beam battery backed up lights and bells.**

7. **Upgraded elevator intercom system. Elevator intercom and displays at fire commands and new equipment supervised line and hardware.**

8. **New decentralized Fire Alarm System (Style 7). Each had 3 separate data risers to transponders located every 3 floors, redundant control panels and electronics. If a station was not manned, announcements could be made from another station.**

9. **In addition to normal emergency power, the fire alarm system was provided with battery back up and also tertiary power to equipment.**

10. **New modernized Operations Control Center with the capability to monitor all HVAC systems and elevators.**

11. **Modernized half of the total elevators to current code, others were to be done by Silverstein. Old relay based system was changed to microprocessor based system.**

12. **The towers were originally compartmentalized for compliance to local law 5. A program for complete sprinklerization was initiated prior to 1993 but was accelerated and completed after 1993. The buildings and the concourse were fully sprinklered.**

13. **Fire drills in conjunction with the Fire Department. Fire wardens were equipped with flashlights, whistles, hats and special training. All tenants were apprised of the location of exits and stairs and also the seriousness of the fire drills.**

14. **Radio repeaters on roof of WTC 5 for Fire Department's communication with the fire fighters.**

15. **Two new N-S corridors in the concourse, One to Vesey and the other to Liberty Street, for faster evacuation from the concourse.**

16. **New and improved exit and directional signs in the concourse.**

17. **Major Circulation Improvement -- $20 million program.**

- A new north/south corridor was built from Vesey Street through to Liberty Street, which provided additional routes of egress for people from the Mall. The new corridors had battery backup lighting. People would be able to evacuate the Mall in five minutes per the modeling that was done.

- Escalators from the Mall were added – one from PATH Square to the Plaza in Five World Trade Center and one from the southern end of the Mall up to Four World Trade Center and onto Church Street.

- Sprinklers and a new fire alarm system, including public address capability, were installed in the Mall.